AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claim 1 (currently amended): A system for measuring a characteristic of an optical article, comprising:

a light source for producing light;

an optical element for focusing the light along a probe path to converge at a reference location associated with an expected position of an optical article, the reference location within the optical article or on a surface thereof;

a sensor for detecting the light from the reference location, wherein the sensor ~~generates~~ comprises a position sensitive diode device operable to generate two signals, a first signal associated with a location of an intensity centroid along one direction and a second signal associated with a location of an intensity centroid along a second direction, the second direction orthogonal to the first direction ~~associated with an intensity and position of the light received for individual spots of received light~~; and

a processor, wherein the processor is configured to receive signals from the sensor associated with a single spot of received light and determine a deflection angle and a direction of the deflection angle of the light from the probe path.

Claim 2 (previously presented): The system of claim 1, wherein the reference location is associated with an expected position of the surface of the optical article.

Claim 3 (previously presented): The system of claim 1, wherein the reference location is associated with an expected position within the optical article.

Claim 4 (original): The system of claim 1, further including a stage for translating an optical article relative to the light source and the probe path in at least one dimension.

Claim 5 (original): The system of claim 1, further including a stage for translating an optical article relative to the light source and the probe path in three dimensions.

Claim 6 (original): The system of claim 1, wherein the processor is further configured to determine a characteristic of the optical article based on the deflection angle of the light at multiple locations of the optical article.

Claim 7 (original): The system of claim 6, wherein the characteristic includes one or more of surface flatness, a divot feature, or a peak feature of the optical article.

Claim 8 (original): The system of claim 6, wherein the characteristic includes an index of refraction value.

Claim 9 (original): The system of claim 6, wherein the characteristic includes stored information.

Claims 10-12 (cancelled)

Claim 13 (currently amended): The system of claim [[12]]1, wherein the position sensitive diode device generates two signals, a first signal associated with a location of an intensity centroid along one direction and a second signal associated with a location of an intensity centroid along a second direction, the second direction orthogonal to the first direction.

Claim 14 (original): The system of claim 1, further including a second optical element positioned to focus the light beam from the reference location to a pinhole filter between the second optical element and the sensor.

Claim 15 (original): The system of claim 14, wherein the second optical element and pinhole filter are disposed in a confocal imaging configuration.

Claim 16 (original): The system of claim 1, where the sensor is positioned to detect light passing through the reference location.

Claim 17 (original): The system of claim 1, where the sensor is positioned to detect light reflected from the reference location.

Claim 18 (currently amended): A method for measuring a characteristic of an optical article, comprising:

illuminating an optical article with a focused beam of light along a probe path, wherein the focused beam converges within the optical article or on a surface thereof;

detecting the light with a sensor after the light interacts with the optical article, wherein the sensor comprises a position sensitive diode device operable to generate two signals, a first signal associated with a location of an intensity centroid along one direction and a second signal associated with a location of an intensity centroid along a second direction, the second direction orthogonal to the first direction;

determining a deflection angle and a direction of the deflection angle of the beam of light with respect to the probe path after interacting with the optical article for a single spot of received light; and

determining a characteristic of the optical article based on the deflection angle.

Claim 19 (original): The method of claim 18, further including scanning multiple positions of the optical article with the focused beam of light to determine deflection angles at multiple positions of the optical article.

Claim 20 (original): The method of claim 19, further including using the multiple deflection angles to determine a characteristic of the optical article.

Claim 21 (original): The method of claim 19, further including producing a surface relief pattern from the multiple deflection angles.

Claim 22 (original): The method of claim 19, further including producing an equivalent single surface plot from the multiple deflection angles.

Claim 23 (original): The method of claim 19, further including producing a volumetric index map.

Claim 24 (original): The method of claim 19, further including confocally imaging the light after the light interacts with the optical article.

Claim 25 (original): The method of claim 19, wherein the light is confocally filtered after the light interacts with the optical article.

Claim 26 (currently amended): A method for measuring a characteristic of an optical article, comprising:

scanning an optical article with a focused beam of light;

detecting a deflection angle and a direction of the deflection angle of the focused beam of light from the optical article at multiple scan positions, wherein

the focused beam of light is focused during a scan to at least two different positions along an optical axis of the focused beam of light,

the deflection angle and a direction of the deflection angle for each of the multiple scan positions is determined from a single spot of light, and

for ~~each of~~ at least one of the multiple scan positions the focused beam converges within the optical article ~~or on a surface thereof~~; and

determining a characteristic of the optical article based on the deflection angles at the multiple scan positions.

Claim 27 (original): The method of claim 26, wherein the scan is performed along a first and second dimension, the first and second dimension orthogonal to the path of the focused beam of light.

Claim 28 (cancelled)

Claim 29 (original): The method of claim 26, wherein the focused beam of light from the optical article passes through a confocal imaging system.

Claim 30 (original): The method of claim 26, further including producing a surface relief pattern from the multiple deflection angles.

Claim 31 (original): The method of claim 26, further including producing an equivalent single surface plot from the multiple deflection angles.

Claim 32 (original): The method of claim 26, further including producing a volumetric index map.

Claim 33 (new): The method of claim 26, wherein the beam of light is detected with a position sensitive diode device.

Claim 34 (new): The system of claim 33, wherein the position sensitive diode device is operable to generate two signals, a first signal associated with a location of an intensity centroid along one direction and a second signal associated with a location of an intensity centroid along a second direction, the second direction orthogonal to the first direction.